IN THE UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF OKLAHOMA

W. A. DREW EDMONDSON, in his capacity as ATTORNEY GENERAL OF THE STATE OF OKLAHOMA and OKLAHOMA SECRETARY OF THE ENVIRONMENT C. MILES TOLBERT, in his capacity as the TRUSTEE FOR NATURAL RESOURCES FOR THE STATE OF OKLAHOMA,

Plaintiff,

vs. 4:05-CV-00329-TCK-SAJ

TYSON FOODS, INC., et al,

Defendants.

- -

VOLUME I OF THE VIDEOTAPED DEPOSITION OF ROGER OLSEN, PhD, produced as a witness on behalf of the Defendants in the above styled and numbered cause, taken on the 10th day of September, 2008, in the City of Tulsa, County of Tulsa, State of Oklahoma, before me, Lisa A. Steinmeyer, a Certified Shorthand Reporter, duly certified under and by virtue of the laws of the State of Oklahoma.

those tables is that for some of the parameters in this analysis, you have eliminated samples that were close to the detection limit; is that right?

A Or a -- we didn't eliminate them from analysis or evaluations. We just did another analysis that didn't consider those because they were so near the detection limit. 11:52AM

Q Okay, but, Dr. Olsen, for purposes of your analysis in your report, your opinions?

A Uh-huh. 11:53AM

Q And the PCA analysis that you've done, did you eliminate samples that were reported close to the detection limit?

A No.

Q Okay. So let's go back to Table 3.10-1. You used dissolved copper and zinc in your PCA analysis, did you not? 11:53AM

A No.

Q Did you use copper and zinc in your PCA analysis? 11:53AM

A The ones I evaluated more thoroughly were total copper and total zinc, and those are the ones that I wrote about most. There were sensitivity runs as I described in there where we compared adding the dissolved, and in my opinion it didn't 11:53AM

change the conclusions, and that's why we did the sensitivity analysis. So in the final evaluations, my opinions are based only upon the total concentrations.

Q All right. Let me rephrase my question. Dr. Olsen, you used the total copper and total zinc parameters in your PCA analysis; correct? 11:53AM

A That's right.

Q Did you use sodium in your PCA?

A Yes. 11:54AM

Q What is the percent reported for those three constituents where in the sampling data the dissolved amount of the constituent exceeded the total? Let's do zinc first.

A On Table 3.10-1 which considers the whole dataset, it's 36.7 percent. 11:54AM

Q That's copper?

A And the next table it goes down to, you know, 4 percent and 7 percent if you get away -- if you don't consider some of the low detect values. 11:54AM

Q If you don't consider some of the values that you actually used in your PCA; is that right?

A I stated it clearly that none of these were used in the PCA. None of the dissolveds were used in the PCA, just the totals. 11:54AM

dissolved. Aluminum at 50. Total arsenic of 21. Total chromium at 50. Total cobalt at 82. Total coliform at 89. Again, that plus or minus is -- 20 is for chemical parameters in a laboratory and it's not for biological parameters. So this would be a bacteria that doesn't have that type of criteria. Total copper is 34. Total iron is 53. Total lead is 64. Total manganese is 33. Total molybdenum is 46. Total nickel is 26. Total zinc is 38. Dissolved orthophosphorus by 365.2 is 28. That wasn't our preferred method. Next one is one of our preferred methods for phosphorus. Soluble reactive phosphorus is not over 20. Sorry. You asked me not to do that. Total dissolved P by 362.2, again not one of the preferred phosphorus analysis method, is 31. Rest of the Ps are below 20, except the total P by 60-20 is right at 21. Ammonium nitrate is 22. Skipping through a bunch of these, parameters that are below 20, TKN is 45, TSS is 50, again some biological parameters that are high. Coliform at 40, E. coli 63, Enterococci at 67, fecal coliform at 69, Salmonella at 73, Staphylococcus at 41. Again, that plus or minus 20 doesn't apply to those, and 17 beta-estradiol right at 24 percent.

12:07PM

12:08PM

12:08PM

12:09PM

12:09PM

Q Dr. Olsen, how many of those parameters that

you've just read off which exceed a relative percent difference between original sample and duplicate of 20 percent were used in your PCA?

A Total arsenic, coliform, total copper, total iron, total manganese, total nickle, total zinc, TKN, TSS and then the bacteria, coliform, E. coli, Enterococci, fecal coliform, Staphylococcus and, again, I want to put on the Record and make very sure that plus or minus 20 percent doesn't really apply to bacteria, and that plus or minus is not an appropriate evaluation criteria for field duplicates. 12:10PM 12:10PM

Q All right. Dr. Olsen, if I kept track, and hopefully you'll trust me on this, I heard 14 of your 26 parameters that you used in your PCA had duplicates versus original with a relative percent difference greater than 20 percent; is that right? 12:11PM

MR. PAGE: Object to the form.

Q Does that sound right?

A Again, given the assumption that that's the right criteria to use, 20 percent, which I've already said it isn't. 12:11PM

Q Let's talk for a moment about the bacteria. Every one of your bacteria analysis of duplicates had a relative percent difference greater than 41 12:11PM

the unimpacted ones.

Q So, Dr. Olsen, per your analysis, you assumed that any groundwater sample that had phosphate or total carbon was contaminated with poultry waste?

A No, I didn't say that at all. 09:54AM

Q Well, how did you divide it then? If some samples that have phosphorus and total carbon are impacted by poultry and some are not, how did you make the distinction?

MR. PAGE: Object to the form. 09:54AM

A Some -- what was the question again?

Q You told me you looked at total phosphorus and total carbon as part --

A And nitrogen, bacteria. I looked at arsenic, too. Arsenic was a pretty good indicator. So there 09:54AM was a whole bunch of things I looked for.

Q I want you to tell me the specific criteria, Dr. Olsen, that you used in evaluating water chemistry for groundwater to validate your 1.3 criteria for groundwater samples. 09:54AM

A I looked at the 1.3 and all the samples below that and all the samples above it and looked at what parameters were at concentrations and the ones that had the higher scores and the ones that didn't, and those were the key ones. I just told you that list. 09:54AM

Q How does that analysis test the validity of your 1.3 criteria?
A It conforms with the reference streams, and it conforms with what we know about uncontaminated water that doesn't have these things in it. It doesn't have arsenic in it. You know, most groundwaters don't have phosphate in it; they don't have nitrates in it; they don't have bacteria in it, you know, and there were some like that, so those are not contaminated. 09:55AM
Q Dr. Olsen, did you look at poultry house density in proximity to the groundwater sampling locations that scored out above or below 1.3?
A I haven't -- we have that analysis. I didn't have time to complete it. I didn't have time to go in and really analyze that. 09:55AM
Q Well, that was one of your steps on surface water. Did you complete that step or not with respect to groundwater?
A No, I have not at this time. 09:55AM
Q You didn't complete that?
A No, I haven't done that at this time.
Q Why not?
A I didn't have time by the time we had to get out the report. 09:55AM

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OKLAHOMA

STATE OF OKLAHOMA,	)	
	)	
Plaintiff,	)	
	)	
v.	)	Case No. 05-cv-329-GKF(PJC)
	)	
TYSON FOODS, INC., et al.,	)	
	)	
Defendants.	)	

Declaration of Judith Duncan

I, Judith Duncan, make the following declaration to the best of my knowledge, information, and belief:

1. I am Director of the Customer Services Division at the Oklahoma Department of Environmental Quality. My duties include overseeing the DEQ's laboratory, which conducts chemical and biological analysis of water samples for DEQ and the Oklahoma Water Resources Board ("OWRB"), among other things. I have been employed by DEQ, and its predecessor agency (Oklahoma State Department of Health, or OSDH), since January 1974.

2. Through my position at DEQ, and through my conversations with several of our employees, I am aware that the State of Oklahoma has expended State resources in monitoring arsenic, copper, and zinc in the Illinois River Watershed. By way of example and not limitation, State resources have been expended in the following projects:

a. From 1978 to 1991, DEQ's predecessor agency collected and analyzed arsenic, copper, and zinc data in the Illinois River Watershed twice annually as a part of the Ambient Trend Program;

b. DEQ analyzes samples for OWRB, and has provided arsenic, copper, and zinc data for samples collected in the Illinois River Watershed as part of Oklahoma's Beneficial Use Monitoring Program since 2002;

c. DEQ's Water Quality Division collected data for arsenic and copper as part of a total management daily load study conducted in the Illinois River Watershed. The sampling occurred in 2003 and 2004. The final report was submitted in June 2005.

3. I declare under the penalty of perjury under the laws of the United States of America that that foregoing is true and correct.

Executed on: March 9, 2009

Judith A. Duncan

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OKLAHOMA

STATE OF OKLAHOMA, Plaintiff,	)	
v.	)	Case No. 05-cv-329-GKF(PJC)
TYSON FOODS, INC., et al., Defendants.	)	

Declaration of Derek Smithee

I, Derek Smithee, make the following declaration to the best of my knowledge, information, and belief:

1. I am Chief of Water Quality for the Oklahoma Water Resources Board ("OWRB"). My duties include statewide water monitoring, Water Quality Standards and Lakes diagnostic and feasibility studies. I have been employed by OWRB since January 1, 1987.

2. Through my position at OWRB, and through my conversations with several of our employees, I am aware that the State of Oklahoma has expended State resources in responding to the release or potential release of phosphorus in the Illinois River Watershed. By way of example and not limitation, State resources have been expended in the following projects:

a. Between 2005 and 2007, OWRB conducted high-flow sampling in the Illinois River Watershed with the United State Geological Survey. This project including sampling and analysis of phosphorus levels;

b. Since 2007, OWRB has conducted Illinois River Probabilistic Monitoring, which includes sampling and analysis of phosphorus levels;

c. Between 1996 and 2004, OWRB developed a new criterion for phosphorus in the Illinois River and revised the Use Assessment Protocols for phosphorus;

d. OWRB conducted a Clean Lakes Study for Lake Tenkiller, which including sampling and analysis of phosphorus levels;

e. OWRB has participated in several projects related the Oklahoma-Arkansas Compact, including projects involving monitoring and analysis of phosphorus and its impact on water quality.

3. OWRB plans on expending resources in the near future to address nutrient pollution in the Illinois River Watershed, including pollution resulting from phosphorus.

4. Through the Beneficial Use Monitoring Program, the OWRB routinely collects water quality data in the IRW, including metals such as arsenic, copper and zinc.

5. I declare under the penalty of perjury under the laws of the United States of America that that foregoing is true and correct.

Executed on: 3/9/09

Derek Smithee

IN THE UNITED STATES DISTRICT COURT FOR THE
NORTHERN DISTRICT OF OKLAHOMA

W. A. DREW EDMONDSON, in his capacity as ATTORNEY GENERAL OF THE STATE OF OKLAHOMA and OKLAHOMA SECRETARY OF THE ENVIRONMENT C. MILES TOLBERT, in his capacity as the TRUSTEE FOR NATURAL RESOURCES FOR THE STATE OF OKLAHOMA, Plaintiff,	)
vs.	) 4:05-CV-00329-TCK-SAJ
TYSON FOODS, INC., et al, Defendants.	)

- -

VOLUME I VIDEOTAPED DEPOSITION OF TODD KING, produced as a witness on behalf of the Defendants in the above styled and numbered cause, taken on the 23rd day of July, 2008, in the City of Tulsa, County of Tulsa, State of Oklahoma, before me, Marlene Percefull, a Certified Shorthand Reporter, duly certified under and by virtue of the laws of the State of Oklahoma.

A I mean, there are extreme events that obviously may exceed whatever the gauge was calibrated to. I'm not sure that the numbers I've utilized have been more on the average daily flow basis. I'm not sure if though exceedances, those high infrequent events, would impact substantially the analysis if there are errors there. 10:54AM 10:55AM

Q In Paragraph 2.3, you --

A On Page 6?

Q Yes, sir. 10:55AM

A Okay.

Q You appear to limit your analyzes to phosphorus bacteria total nitrogen, is that true?

A For the purposes of trying to quantify the different remedial measures, I tried to generalize to these three forms to facilitate the discussions and presentation. 10:55AM

Q There's no discussion in here of heavy metals?

A No, sir.

Q And why didn't you address the issue of heavy metals? 10:56AM

A That wasn't identified as one of the injuries to me at the getgo.

Q Okay. And the person or people who would have identified those injuries to you would include Roger 10:56AM

you traced the injury back to any source site for any one of these constituents of concern? 5:09PM

A Me personally, no.

Q Now, you mentioned that you -- other experts defined for you what the injuries were and that defined the scope your project going forward, right? 5:09PM

A Yes, sir.

Q Now, for the total nitrogen, who -- who told you that there was an injury in the Illinois River Watershed associated with total nitrogen and you needed to address that? 5:09PM

A Actually, specifically for total nitrogen and bacteria for the drinking water well, that was actually based on my own analysis of the 60 wells.

Q Okay. All right. Because I have read all the others expert reports and I want you to correct me if my statement is wrong. I have not seen any of the other causation expert reports submitted by the plaintiff in this matter where an expert offered the opinion that there was a problem with total nitrogen in the Illinois River Watershed. I've only seen that in your report, is that correct? 5:10PM

MR. BLAKEMORE: Object to form.

A I can't speak to all the other reports.

Q Are you aware of any other expert that has offered 5:10PM

you traced the injury back to any source site for any one of these constituents of concern? 5:09PM

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MR. BLAKEMORE: Object to form.

A I can't speak to all the other reports.

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IN THE UNITED STATES DISTRICT COURT FOR THE
NORTHERN DISTRICT OF OKLAHOMA

STATE OF OKLAHOMA, ex rel W.A. DREW EDMONDSON in his capacity as ATTORNEY GENERAL OF THE STATE OF OKLAHOMA, ET AL. Plaintiff, vs. TYSON FOODS, INC., ET AL. Defendants.	Case No. 05-CV-0329-GKF-SAJ

STATE OF OKLAHOMA'S RESPONSE TO DEFENDANT'S REQUEST'SFOR ADMISSION

Pursuant to Fed. R. Civ. P. 36, plaintiff State of Oklahoma, ex rel. W.A. Drew Edmondson, in his capacity as Attorney General of the State of Oklahoma, and Oklahoma Secretary of the Environment, C. Miles Tolbert, in his capacity as the Trustee for Natural Resources for the State of Oklahoma under CERCLA ("the State"), objects and responds as follows to "Defendants' Requests for Admission to the State of Oklahoma":

GENERAL OBJECTIONS

1. The State objects to the definition of "Plaintiffs," "you" and "your" to the extent it includes "all offices, personnel, entities, and divisions of the Oklahoma state government" and to the extent it includes "W.A. Drew Edmondson and the office of the Oklahoma Attorney General, Miles Tolbert and the office of the Oklahoma Secretary of the Environment and their attorneys, experts, consultants, agents and employees." The plaintiff -- singular -- in this action is the State as sovereign; it is not these additional entities and individuals. Accordingly, wherever in these requests for admission the terms "Plaintiffs" [sic], "you" and "your" are used the State is responding as the sovereign and the sovereign alone.

2. The State objects to the definition of "non-point source." The CWA does not define "non-point source." *See American Wildlands v. Browner*, 260 F.3d 1192, 1193 (10th Cir. 2001) ("Unlike point source discharges, nonpoint source discharges are not defined by the Act. One court has described nonpoint source pollution as 'nothing more than a [water] pollution problem not involving a discharge from a point source.'") (citation omitted).

3. The State objects to the definition of "CERCLA Hazardous Substances List" insofar as it might (or is intended to) create the erroneous impression that specific mention on the defendant-defined "CERCLA Hazardous Substances List" is the sole inquiry for triggering CERCLA liability with respect to "hazardous substances." It is important to note that the concentration of a hazardous substance is not relevant to whether CERCLA liability is triggered for a substance. Further, it is enough that a mixture or waste solution contain a hazardous substance for that mixture or solution to be deemed hazardous under CERCLA. Yet further, even if a material is not specifically listed as a hazardous substance, if its components include one or more hazardous substances, the material falls under CERCLA. Finally, the listing of elemental chemicals on various EPA lists used in CERCLA is intended to include compounds of such chemicals for purposes of determining whether a chemical / chemical compound is a hazardous substance for purposes of CERCLA liability.

4. The State objects to these discovery requests to the extent that they seek the admission or denial of matters that are protected by the attorney-client privilege and/or the work product doctrine, or to the extent that they require the State to admit or deny matters which are the subject of review by expert consultants which has not yet been completed.

5. The State objects to these requests for admission because the purport to require the State to admit or deny matters without any limitation in time, which makes them overly

broad, oppressive, unduly burdensome and expensive to answer. Determining whether a particular act or event has ever occurred would needlessly and improperly burden the State.

6. The State objects to these requests for admission to the extent that they do not state with the required degree of specificity and particularity what matter is sought to be admitted or denied. As such, such requests are vague, indefinite, ambiguous and not susceptible to easily discernible meaning, requiring the State to guess as to what it is admitting or denying, or to admit or deny a statement readily susceptible to alternative interpretations.

7. The State objects to the definition of "human feces" as including urine, which is contrary to the common definition, and makes requests to admit subject to being misconstrued.

8. The State objects that Defendants' various definitions of "elemental" phosphorus, nitrogen, copper, arsenic, and zinc (Definitions 8, 10, 12, 14, and 16) and "compounds" of phosphorus, nitrogen, copper, arsenic and zinc, (Definitions 9, 11, 13, 15, and 17) are unrealistic, contrary to science, and ambiguous in their application because "compounds" of each constituent necessarily contain the "elemental" form. However, for purposes of the admissions and denials which follow (and for these purposes alone), the State "accepts" Defendants' definitions that each "elemental" constituent is pure and unmixed with any other element while each "compound" contains the "elemental" constituent in chemical combination with another element. For purposes of the admissions and denials which follow (and for these purposes alone), the State will engage in the fictional premise that "elemental" constituents and "compounds" of those constituents as defined by Defendants are mutually exclusive terms.

RESPONSE TO REQUEST NO. 230

The State objects to the term "Plaintiffs" as there is only one Plaintiff, the State of Oklahoma. Subject to and without waiver of this objection, the State denies.

REQUEST FOR ADMISSION NO. 231

Plaintiffs have not incurred any costs for hauling poultry litter out of the Illinois River Watershed.

RESPONSE TO REQUEST NO. 231

The State objects to the term "Plaintiffs" as there is only one Plaintiff, the State of Oklahoma. Subject to and without waiver of this objection, the State denies.

REQUEST FOR ADMISSION NO. 232

Plaintiffs have not incurred any costs associated with managing and disposing of poultry litter within or outside of the Illinois River Watershed.

RESPONSE TO REQUEST NO. 232

The State objects to the term "Plaintiffs" as there is only one Plaintiff, the State of Oklahoma. Subject to and without waiver of this objection, the State denies.

VIII. DEFENSES RELATING TO THE USE OF POULTRY LITTER AS A FERTILIZER AND SOIL AMENDMENT

REQUEST FOR ADMISSION NO. 233

Poultry litter has been used as a fertilizer or soil amendment in the Illinois River Watershed for more than fifty years.

RESPONSE TO REQUEST NO. 233

Admitted, to the extent in limited instances poultry litter has been used as a fertilizer or soil amendment at various times during the last fifty years. The State denies that poultry litter has been land applied as a fertilizer or soil amendment predominantly during that period of time.

REQUEST FOR ADMISSION NO. 234

The State of Oklahoma has issued animal waste management plans to poultry producers specifying the location and amounts for the land application of poultry litter in the Illinois River Watershed.

RESPONSE TO REQUEST NO. 234

The State objects to the term "issued" as the State does not issue animal waste management plans. Subject to and without waiver of this objection, the State denies.

REQUEST FOR ADMISSION NO. 235

Animal waste management plans issued by the State of Oklahoma to poultry producers permit or authorize the application of poultry litter to lands in the Illinois River Watershed when soil tests show the soil of the relevant parcel of land contains total P of up to 300 lbs per acre.

RESPONSE TO REQUEST NO. 235

The State objects to the term "issued" as the State does not issue animal waste management plans. Subject to and without waiver of this objection the State denies.

REQUEST FOR ADMISSION NO. 236

Animal waste management plans issued by the State of Oklahoma to poultry producers do not limit or restrict the land application of poultry litter in the Illinois River Watershed to the agronomic needs of plants or crops for elemental phosphorus or phosphorus compounds.

IN THE UNITED STATES DISTRICT COURT

FOR THE NORTHERN DISTRICT OF OKLAHOMA

STATE OF OKLAHOMA, ex rel, W.A. DREW EDMONDSON, in his capacity as ATTORNEY GENERAL OF THE STATE OF OKLAHOMA, et al.	)	
Plaintiffs,	)	
V.	)	No. 05-CV-329-GKF-SAJ
TYSON FOODS, INC., et al.,	)	
Defendants.	)	

REPORTER'S TRANSCRIPT OF PROCEEDINGS

FEBRUARY 19, 2008

PRELIMINARY INJUNCTION HEARING

VOLUME I

BEFORE THE HONORABLE GREGORY K. FRIZZELL, Judge

APPEARANCES:

For the Plaintiffs: Mr. Drew Edmondson
Attorney General
Mr. Robert Nance
Mr. Daniel Lennington
Ms. Kelly Hunter Burch
Mr. Trevor Hammons
Assistant Attorneys General
313 N.E. 21st Street
Oklahoma City, Oklahoma 73105

Glen R. Dorrough
UNITED STATES COURT REPORTER

EXHIBIT
tabbies
10

being overapplied and are needed for plant growth.

THE COURT: Well, but here they're focusing on E. coli and bacteria, not on phosphorus; correct?

MR. RYAN: I'm sorry, Your Honor?

THE COURT: In this proceeding are they not focusing on bacteria as opposed to phosphorus?

MR. RYAN: Yes, Your Honor. No, that's absolutely right, but we're talking about what the land needs and what's being overapplied.

THE COURT: Right, right.

MR. RYAN: I think their argument only goes to the phosphorus, to the one element of phosphorus. It does not address the other twelve elements which I say are needed for plant growth and are beneficial to the crops and plants and pastures and forage. And I don't think there's any question but that there has been an overapplication of litter on some or many farms. That's not an issue in our book. I'm certainly not arguing that in terms of phosphorus.

Your Honor, these are the defendants, there's 13 of them. They're in seven, if you will, if you disregard affiliated companies, there's seven companies. The plaintiffs want to treat us as if we were one homogenous group. And if they can show that the defendants, plural, apply bacteria somehow to the waterways and that makes all the defendants liable. These defendants are competitors of one another, Your

used to -- money from that has been used to replace septic tanks and to do these various measures designed to improve land use practices.

Q. Has the State of Oklahoma engaged in any litter hauling?

A. We have not engaged in litter hauling but we have subsidized litter hauling.

Q. Let me invite your attention to State's Exhibit 47. Could you tell me, please -- do you have that?

A. If it didn't drop to the ground, yes, I do, sir.

Q. How does the incentive program work?

A. There are -- the State pays a subsidy of approximately $10 a ton to move litter out of the Illinois River Watershed. There's also a tax credit that's available for the same purpose. And the litter is not just hauled out of the watershed willy-nilly. We put restrictions on where it can be taken in order to protect the area that receives it.

Q. Are there any prohibitions associated with that program as well?

A. There are.

Q. What would that be?

A. Well, Exhibit 47 shows the areas where the litter that's taken out of the watershed cannot go, either because of a concern about nutrients in those watersheds or because of the vulnerability of the groundwater there.

Q. Do we, as a state, list the water areas that are impaired

smaller than in the Illinois River Watershed. And again, just now being hit with a paper you hadn't read in awhile, you really have to read these in detail before you can make judgments concerning it.

Q. Approximately how many poultry houses are there in the IRW?

A. Well, probably a conservative estimate of active poultry houses to which we can ascribe integrators is on the order of 1,853 or so. I think that's the exact number. Probably has more exactness to it than it deserves, but so a lot, 1800.

Q. Does that number change?

A. Yeah, it changes all the time. New houses are built, old houses become inactive or are torn down within the watershed. It's a dynamic circumstance.

Q. What do you see the size of houses, from what you've seen in the past to what you are seeing in the new ones being built today?

A. Well, there's really a whole stratigraphy to the houses. What you see today are larger houses, longer and wider. And you tend to see newer complexes appear to have more houses at them.

Q. You testified earlier today that the work that was being performed by you and your team was a complicated task. Could you tell the Court why that is?

A. Well, it's complicated for a number of reasons. Number

Q. And since the deposition, have you made those changes in your data?

A. So the underlying data have been corrected and the waste generation has been adjusted accordingly.

Q. Does it change your overall opinion about this, that you've made in this case with regard to your deposition?

A. It doesn't change my opinion. It changes the amount of waste generated slightly.

Q. And what change did it reflect?

A. It slightly decreased the amount of waste generated.

Q. On what I believe is marked as State's Exhibit 429 -- actually it's 427, is the total waste generated, as calculated by you, shown on that exhibit?

A. Yes, so in the lower right-hand corner there's a total of 345,436, if I can read that correctly.

Q. All right. And that's the new number from the new data set correcting those four houses you just described?

A. Yes.

Q. I'll ask you now to look at Exhibit 130 in your packet of materials there. And if you would, just briefly describe to the Court what that is.

A. So Exhibit 130 is some output from the database. This identifies each of the active houses for which an integrator has been identified in the IRW, identifies the type of poultry produced, identifies the dimensions of the building, the

Q. All right. Well, then let's go through it and see what I've missed here. We have all the Oklahoma data in the first chart which, I think, is similar to what we just saw, is it not?

A. That one is the same, yes.

Q. So the next chart is, in fact, the Illinois River; is that correct?

A. That's correct. So the same ODAFF data were analyzed for just the Illinois River Watershed and similar graphs were produced as to the ones we've just talked about.

Q. And what does it tell us that happens in the Illinois River Watershed?

A. It's a very similar story. I guess the slight exception is that, in fact, waste is disposed of even closer to houses in the IRW than the rest of Oklahoma. So again, approximately 30 percent within a mile, 60 percent within about two miles -- or 67 percent within two miles or so, and 80 percent within approximately 3.6 miles or so.

Q. From the ODAFF records, can you tell when these land applications occurred?

A. Well, some of the ODAFF records do identify the timing of land application. So not all of those records identify timing. For those for which timing could be identified and for which the land application was in the Illinois River Watershed, that analysis was conducted.

soil test.
Q. So as a result of that rule, did people in Arkansas end up capturing more plots or more fields than they had been having tested before?
A. Yes, as a result of that rule, as you can see, there were a lot more fields that were sampled.
Q. All right, sir. What was the average STP value for the test results in Benton County in 2006?
A. The average in 2006 was 879 for Benton County and for Washington County, the average was 793.
Q. Would either one of those values be at least ten times the amount of phosphorus that's needed agronomically to grow crops?
A. Yes, they would.
Q. Let's look at exhibit -- excuse me -- 415, if we could. Before we talk about the numbers, Dr. Johnson, would you tell the Court basically what this shows, what this tabulation shows and what the source of the data was?
A. The source of the data was a set of soil test results representing George's and Tyson litter applications or litter applications associated with those or farmers associated with those integrators. And the data in the table is a summary of the results from those soil test reports.
Q. Okay. To your knowledge, were the original data things that have been produced in this case that you reviewed?
A. Yes, they were.

been -- I mean, the average number of samples was 26 samples, 26 percent of the samples. Average soil test P was 30.

Q. Of that group below 65?

A. Of that group less than 65.

Q. What about the group between 65 and 300?

A. That group represented 47 percent of the samples and the average STP was 170.

Q. So the 170 would be not quite three times the STP necessary?

A. That's right.

Q. All right. What about for those samples over 300, what was the percentage?

A. There were 25, almost 26 percent of the samples that were above an STP of 300. And the average STP for that group was 567.

Q. Dr. Johnson, in the Illinois River Watershed would you, in nature, ever see an STP that high?

A. I don't believe so, no.

Q. Mr. Hammons is about to put up a map, Dr. Johnson, and as he does so, let me ask you to -- first of all, if you would, please, explain the source of this map which we've numbered Exhibit 413 and then we'll talk about what it represents.

A. The map is from a USDA publication called Manure Nutrients Relative to the Capacity of Cropland and Pastureland to Assimilate Nutrients in the U.S.A.

Q. All right, sir. We've talked, Dr. Johnson, about the nutrients, particularly the phosphorus that's in poultry litter, so that we know there are some nutrients there. But let me ask you this. As a general proposition, is poultry waste and poultry litter a good commercial type fertilizer?

A. No, it is not.

Q. Why do you say that, sir?

A. If it were a good fertilizer, it would be in demand by farmers who have identified nutrient deficiencies far away from where the poultry waste is generated and it would be sold by fertilizer retailers.

Q. How does the nutrient value per pound or per ton of poultry litter compare with the nutrient value of commercial fertilizer?

A. It's much, much less.

Q. As a result, does that mean you have to apply or move a larger weight of litter to get the same amount of fertilizer?

A. Yes.

Q. Or nutrient?

A. Yes, you would, yes.

Q. Okay. In your profession, sir, what do you mean when you talk about a soil conditioner or a soil amendment?

A. A soil conditioner or a soil amendment would be a material that could be applied to a soil to correct an existing chemical or physical property that was deficient in providing the

necessary support for crop production.
Q. Okay. Do you have experience prior to your retirement in reviewing for the Oklahoma Department of Agriculture, Food & Forestry proposed soil amendments that were coming on the market?
A. Yes.
Q. Do you feel like you understand what a soil amendment is and what ODAFF requires of a soil amendment?
A. Yes.
Q. Has anyone ever asked you to evaluate poultry litter as a soil amendment or a soil conditioner?
A. No.
Q. To your knowledge, Dr. Johnson, has anyone asked either you or anyone else at Oklahoma State University to evaluate poultry litter or poultry waste as a soil amendment?
A. No.
Q. Or soil conditioner?
A. No.
Q. Okay. Is, in your view, poultry litter a good soil conditioner or soil amendment?
A. No.
Q. Why not?
A. Well, because in order for it to be a good soil conditioner or amendment, it must have components that will correct a physical or chemical condition that's lacking in the

soil. And while organic matter can be added to soils to improve things like soil tilth and infiltration and moisture-holding capacity, in order for that to be effective, it needs to be incorporated into the soil, into the tillage depth.

Q. Is it your understanding that typically in the Illinois River Watershed poultry litter is incorporated into the soil or spread on top of the soil?

A. It's my understanding and it's my belief that it is seldom incorporated and most often the traditional application is simply a surface application.

Q. All right, sir. In your business and in your profession is unmanipulated animal manure considered a soil conditioner or a soil amendment?

A. No, it is not.

Q. And as we use these terms, are a soil conditioner and a soil amendment the same thing?

A. I believe so, yes.

Q. Okay. In the testimony that you've given, Dr. Johnson, have you taken any account of the bacterial content of poultry waste as opposed to the nutrients that we've discussed?

A. No.

MR. NANCE: Nothing further, Your Honor, oh, other than to move admission of the exhibits.

THE COURT: Very well. Those exhibits, do they have

A. Well, it's a source of nutrients.
Q. Yes or no, it is a fertilizer?
A. And you could call it a fertilizer. It is not registered as a fertilizer.
Q. And part of your affidavit, part of what Mr. Nance asked you, you have the opinion that it doesn't qualify as a soil amendment?
A. That's true.
Q. Let's look at Exhibit 18. This is OSU Production Technology Publication PT 98.7. Do you see that?
A. I'm looking for it.
Q. It's on the screen, but I'll be glad to help you find it. Who wrote this?
A. Yes.
Q. Who wrote this?
A. Dr. Hailin Zhang.
Q. Who is he?
A. He's the current extension soil nutrient management state specialist for soil nutrients.
Q. He is the nutrient management specialist for the State of Oklahoma?
A. That he is.
Q. Would you read aloud the first paragraph?
A. "Most people recognize the value of animal waste as a plant nutrient source or soil amendment but the potential of

addition to the Oklahoma ones, I also have used beach closing information from the State of Connecticut.

Q And in preparation for your testimony, have you had the opportunity to review data submitted by the State from samples within the Illinois River watershed? 09:21AM

A Yes, I have.

Q And have you also in preparation for your testimony reviewed defendants' affidavits? 09:21AM

A Yes, I have reviewed the affidavits submitted by Drs. Clay, Banner, Andrews, Gibb, Jaffe, Samadpour and Dupont.

Q Specifically in regard to the affidavit of Dr. Clay, he states that land applied animal manure has been a fact since 300 BC. Have agricultural practices changed any since 300 BC? 09:22AM

A Yes, it is a fact that manure, bedding and associated animal waste has been used to fortify and modify and improve soil since antiquity, but what changed dramatically was the emergence after World War II of the industrialization of agricultural, the concentration of animal husbandry into what are now called CAFO's or concentrated animal feeding operations. The utilization of high amounts of 09:22AM 09:23AM

synthetic fertilizers and pesticides in addition to the continued application of animal waste so that in many cases animal waste is no longer applied as a soil improvement because the soil has already been modified and fertilized with synthetic fertilizers, but as rather a way disposing of these enormous amounts of concentrated waste. 09:23AM

Q Are there particular environmental problems associated with the large scale disposal of those wastes? 09:23AM

A Yes. The concentration of animal waste has impacts on water, air, odor, so there are social impacts for community members. This is not as great a problem for the Illinois River watershed, but there are many parts of the country now where downwind of concentrated animal feeding operations, the air quality from the point of view of contaminants in the air as well as from the problem of intense odor has become widespread. 09:24AM

Q And from where does that odor come? 09:24AM

A Well, the odor is --

MR. RYAN: Let me object. He said it doesn't apply to the IRW.

THE COURT: Sustained. We're going into the panhandle I believe. Go ahead. 09:24AM

I could give you some specific numbers for '06 and '07. And in those two years, I believe we have -- our conservation district employees have -- the number escapes me momentarily. I'll see if I can recall what it is but I think it's 1,995 were written in those two years.

Q. Mr. Young, is there an inspection process by Arkansas Natural Resources Commission to determine compliance with plans?

A. We actually have an agreement with our -- between my agency and our DEQ to provide inspection, not only of these dry litter permit facilities but also the CAFO facilities. And our conservation district technicians, in the agreement that my agency has with them, we require them to do an inspection on five percent of those permitted facilities annually. My employees at DNR do some joint inspections with those technicians so that we're satisfied that the inspections are actually being done properly.

Q. Mr. Young, if an inspection discovers or reveals a violation of the law, what's the process for correcting that under the Arkansas regulatory program?

A. Our first objective is to get compliance with our Arkansas laws. And we have instructed our conservation districts and their technicians to use that as a priority, provide whatever technical assistance is available to try to get compliance. And if we simply can't get compliance in that manner, we have,

I think, appropriate authority to assess penalties. If we think it's a direct violation of our state water quality standards, the agreement we have with DEQ, we refer that matter to them to take enforcement action on.

Q. Mr. Young, based upon the inspections that have been performed and your own personal knowledge as well as conversations with your staff members, are you aware of any indication of widespread non-compliance in the State of Arkansas with your regulatory program?

A. No. We've probably had more problem with compliance with the registration part of it. I think we sent out something like a hundred certified letters last year to people who had previously registered, but did not last year. And I think we got 90 percent of those complied just based on that. And we had to resort to getting a local sheriff's deputy to actually serve the papers on the other 10 or 11. I think we ended up issuing -- entering into consent agreements with ten of those and they were assessed a first tier penalty.

Q. What you are describing, as I understand it, is registration issues; correct?

A. Yes.

Q. What about with respect to land application practices? Are you aware of any evidence of widespread violation of the Arkansas laws regarding litter application rates under the regulatory program?

A. No, our experience has been we've received several phone calls, primarily with concern about dust and odor issues. And when we made the callers aware that under the law and our regulations, they have to identify themselves and file a notarized complaint, that has a chilling effect on the average citizen, I guess, because most of those who called in with that type of complaint didn't follow up. So the complaint didn't rise to meet the standard for us to investigate it.

Q. Mr. --

A. We've since --

Q. I'm sorry?

A. We didn't log those calls. We've since started logging those. But we did have, I think, four complaints from individuals who identified themselves and submitted a notarized letter that we followed up on. Two of those were complaints of overapplication of chicken litter. And one of them was application without a plan. And the fourth one was a suspected water quality violation.

Q. Mr. Young, in each of those four instances, did the agency take action to investigate the complaint and, if appropriate, to pursue remedies?

A. Yes. They were all investigated by the conservation district technicians as well as by my staff. Three of the four were issued warning letters, which is what's called for under our regulations for a first violation. Plus we scheduled a

scientists to help producers and nutrient management planners evaluate and rank potential risk for P loss from agricultural fields." Did I read that correctly?

A. Yes, you did.

Q. So you are, in these phosphorus indices, looking at some way to try to evaluate the risk of overapplying poultry litter for phosphorus?

A. Well, the P index doesn't necessarily have to do with poultry litter. We use P index on every ag field there is, whether it's ever seen poultry litter or not.

Q. But in this context of talking about poultry litter, you are trying to evaluate risk?

A. Right, evaluation of risk.

Q. Because overapplying poultry litter for phosphorus is a risky business, isn't it?

A. Overapplying poultry litter for phosphorus? You are saying -- I don't quite understand. You're saying overapplying poultry litter for phosphorus, for what purpose are you applying the phosphorus?

Q. Well, you certainly are not applying it as a fertilizer if it's over 65 or a hundred, are you?

A. Well, if you are applying it on a field that has a soil test level of 65 or a hundred, then the crop does not need additional phosphorus applied.

Q. That's a very good point, Doctor. Thank you. But it is